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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,541	12/28/2005	Francesco Pessolano	NL030781	3960

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EXAMINER	
DUNN, DARRIN D	

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,541	PESSOLANO ET AL.	
	Examiner	Art Unit	
	DARRIN DUNN	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *2-3, 9,and 12-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7,8,10,11 and 17-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the communication filed on 03/11/2008.

2. Claims 1, 7, 8, 10-11, and 17-23 are presented for examination.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teller et al. (USPN 2002/0019586) in view over Knispel et al. (USPN 4883067).

6. As per claim 1, Teller et al. teaches a method of controlling an electronic device, comprising the steps of:

detecting brainwaves of a user ([TABLE 1 – EEG], [0048], [0086] e.g., EEG, EMG, and EOG sensor data is utilized to provide indicators to the user of his or her sleep patterns)

in response to detecting waves from the user, at least one of reducing a volume of sound output by the electronic device, reducing a quality of sound output by the electronic device, reducing a size of an image output by the electronic device, and reducing a quality of an image output by the electronic device; ([0114] e.g., sensor device adapted to turn off a computer controlled lighting system, television, or stereo when the wearer is determined to have fallen asleep. The reduction of a quality of output occurs when the power is turned from an on state to an off state. The degree of reduction is not specified.)

in response to detecting waves or a REM state, switching the electronic device to one of off and a hibernation mode of reduced power consumption ([0114] e.g., turning television off)

Teller et al. does not teach the detection of theta waves and delta waves from the user. Knispel et al. teaches that brainwaves may comprise theta, delta waves, and alpha waves. Theta waves are often associated with pre-sleep, dream-like mentations, and visual imagery. Delta waves correspond to waves during sleep ([COL 1 lines 24-39]) Alpha waves correspond to being awake.

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to measure both theta and delta waves as a means to measure sleep stages. Sleep stages are a function of brainwaves (i.e., theta, alpha, or delta waves) Tellet et al. teaches an EEG that measures brainwaves of a user, and based on detecting a sleep state of a user, a device is turned off. Knispel et al. teaches the type of brainwaves associated with detecting a sleep state. A theta wave corresponds to a pre-sleep stage. A delta wave corresponds to a deeper sleep stage. Therefore, it would have been obvious to one of ordinary skill in the art to measure the various sleep stages as a function of theta and delta brainwaves. Since it is foreseeable that a television

may awaken a user during the onset of a first sleep stage (i.e., theta waves corresponding to with a pre-sleep stage), it would have been beneficial to reduce the quality of sound output as to minimize disruptions to a user during this particular sleep stage. Due to the transitory nature of this stage before entering a deeper sleep stage and a greater likelihood of responding to sound variations compared to a deeper sleet stage, a user is benefited in the sense that turning off the electronic device during a 'theta stage' will minimize disruptions. In particular, a user entering a pre-sleep stage while watching television is more susceptible to sudden volume changes (as in the case of commercial breaks) and therefore may appreciate a reduction in sound output) With respect to detecting a user is asleep (e.g., delta waves), it would have been obvious to turn the device off as to reduce power and guard against device related interruptions.

7. As per claim 7, Teller et al., as modified, teaches a computer program enabling a programmable device to carry out a method as in claimed 1, wherein the computer program is stored on a computer readable medium, which when executed by a computer system, carries out the steps claimed on claim 1 ([ABSTRACT], [FIG 1-35], [0129])

8. As per claim 8, Teller et al., as modified, teaches an electronic device, comprising:

a receiver -50 ([FIG 1]) for receiving, from a detector –sensor device (-0044]), a detection signal indicative of a state of a user ([TABLE 1 -EEG data]); and

a control unit -30 ([FIG 1], [0056]) which:

is able to use the receiver to receive the detection signal from the detector ([0050],

determine, whether based on the received detection signal, the user is asleep (supra claim 1, delta waves) , probably asleep (supra claim 1, theta waves), or awake ([0086] e.g., wake time) ;

switch the electronic device to a mode of reduced power consumption in response to

determining that the user is asleep ([0114] e.g., turning television power from an 'on mode' to an 'off mode' effectively reduces the power from on to off. In effect, power consumption is reduced);

in response to determining that the user is probably asleep, controlling the electronic device to at least one of reduce a volume of sound output by the electronic device, reduce a quality of sound output by the electronic device, reduce a size of an image output by the electronic device, reduce a quality of an image output by the electronic device (supra claim 1, wherein based on detecting a pre-sleep stage, it is obvious to reduce the quality of output via turning the power off. Please note that the degree of reduction is not specified)

9. As per claim 10, Teller et al., as modified, teaches the electronic device as claimed in claim 8, further including a motion detector ([0073], [0080] e.g., body movement or motion)

10. As per claim 11, Teller et al, as modified, teaches the electronic device as claim in claim 8, further including:

an output means which generates at least one of an audio signal and a display signal ([0114] e.g., television)

11. As per claim 17, Teller et al, as modified, teaches an electronic device including a processor programmed to perform the steps in claim 1 ([FIG 13], [0046], [0096], [0113-114])

12. As per claim 18, Teller et al, as modified, teaches the electronic device as claimed in claim 8, further including:

13. A brainwave detector which measures brainwaves of the user and generates detection signal based on the detected brainwaves ([TABLE 1- EEG], [TABLE 2], [0046] e.g., detection

signal, i.e., output, utilized in part for detecting sleep onset, which in turn is utilized to turn off an electronic device ([0114])

14. As per claim 19, Teller et al., as modified, teaches an electronic device comprising:

A brainwave detector which measures brainwaves of a user of the electronic device and generates a detection signal based on the detected brainwaves ([TABLE 1-2], [0046], [0050] e.g., supra claim 1, wherein multiple brainwaves are measures via sensor device, incorporated in the form of an attachable armband)

A receiver for receiving the detection signal from the brainwave detector ([0049] e.g., signals representative of parameters used by the microprocessor), and

A control unit – [0096- armband] which:

receives the detection signal from the receiver ([0106])

determines whether the user is probably asleep by identifying from the detection signal a first brainwave pattern (e.g., theta waves) that indicative of at least one of a relaxed with eyes closed, sleep, already sleeping (delta waves), or in a sleep transition (theta waves) (supra claim 1, wherein theta and delta waves are detected via EEG and processed to determine a sleep stage of a user. In turn, based on the sleep stage, an electronic device is turned off)

determines whether the user is asleep by identifying a second brainwave pattern indicative of the user being in a deep sleep (e.g., supra claim 1, wherein delta waves (waves less than 4 hertz corresponding to deep-sleep stage) are indicative of a particular sleep stage) or REM sleep.

15. As per claim 20, Teller et al., as modified, teaches the electronic device as claimed in claim 19, further including:

a motion detector which outputs a second detection signal based on detected motion ([0110] – accelerometer); and,

wherein the control unit determines whether the user is probably asleep based on whether the brainwave detection signal is indicative of theta or alpha waves (Teller et al, as modified, in combination with Knispel et al., teaches the detection of theta (e.g., pre-sleep) and alpha (e.g., state of relaxation but not asleep, i.e., awake) and determines whether the user is asleep based on the brainwave detection signal being indicative of delta waves or REM sleep (supra claim 1, wherein based on the detected wave, a television is turned off)

16. As per claim 21, Teller et al, as modified, teaches the electronic device as claimed in claim 19, wherein the control unit determines whether the user is probably asleep based on whether the brainwave detection signal is indicative of theta or alpha waves (supra claim 1, wherein based on the detection of theta waves (e.g., pre-sleep), is indicative of being probably asleep) and determined whether the user is asleep based on the brainwave detection signal being indicative of delta waves or REM sleep (supra claim 1, wherein it is interpreted that a sleep transition comprises several stages. Teller et al. teaches that an EEG measures brainwaves and in response turning off a device. Knispel teaches that brainwave patterns indicative of various sleep stages. Therefore, Teller in combination with Knispel provides a means to detect several sleep stages, and in response will turn off an electronic device based on the particular sleep stage)

17. As per claim 22, Teller et al., as modifed, teaches the electronic device as claimed in claim 8, further including a pressure sensor for generating the detection signal ([0044] e.g., sensor for detecting blood pressure and/or pressure on muscle and bones)

18. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Teller et al. (USPN 2002/0019586) in view over Knispel et al. (USPN 4883067) and in further view of Sylliassen (USPN 20020135474)

19. As per claim 23, Teller et al., as modified, teaches the method in claim 1, further including:

20. a motion detector ([0080] e.g., accelerometer) and reducing a volume of sound output by the electronic device, reducing a quality of sound output by the electronic device ([0114] e.g., turning electronic device off. The degree of reduction is not specified) determining whether movement has been determined fro a predetermined time;

However, Teller et al, as modified, does not teach wherein the electronic device is turned off when motion has been determined for a predetermine time and in response to no movement being detected for a predetermined period of time reducing an output of the electronic device. Sylliassen teaches turning off an electronic device after movement has not been detected for a predetermined period of time ([ABSTRACT], [FIG 3], [FIG 4A], [FIG 6])

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to detect the motion of a user for a predetermined period of time, and in response to detecting no movement for a period of time, turn off an electronic device. Teller et al., as modified, teaches measuring signals indicative of a state of a user (motion being a measured state via an accelerometer) and in turn reducing the output of a device (e.g., turning off the electronic

device upon detecting a user is asleep). Sylliassen teaches turning off the electronic device after no movement has been detected for a predetermined period of time. Since a sleeping user is less likely to exhibit motion compared to an awake user, a user's sleep state may be measured as function of motion. Thus, it would have been obvious, as taught by Sylliassen, to turn off an electronic device as a function of movement and time.

Response to Amendment

21. The amendment to the claims, filed 03/11/2008, has been entered.

Response to Arguments

22. Applicant's arguments with respect to claims 1, 7, 8, 10-11, and 17-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARRIN DUNN whose telephone number is (571)270-1645. The examiner can normally be reached on EST:M-R(8:00-5:00) 9/5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DD
06/05/08

/Albert DeCady/
Supervisory Patent Examiner
Art Unit 2121